WORLD HERITAGE: WHERE ARE WE? AN EMPIRICAL ANALYSIS

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Abstract
A statistical analysis of the UNESCO World Heritage List is presented. The World Heritage Convention intends to protect *global* heritage of outstanding value to mankind, but there has been great concern about the missing representativity of the member countries. There is a strongly biased distribution of Sites according to a country's population, area or per capita income.
The paper reveals the facts but refrains from judging whether the existing distribution is appropriate or not. This task must be left to the discussion in the World Heritage Convention.

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I. World Heritage and UNESCO

In 1959, UNESCO launched an international campaign to save the Abu Simbel temples in the Nile Valley. But already in the 1920s the League of Nations became aware of the growing threat to the cultural and natural heritage of the planet. However, nothing concrete emerged despite many years of intensive discussions and drafting of reports. In November 1972 the General Conference of UNESCO adopted the *Convention concerning the protection of the world cultural and natural heritage* at its 17th session in Paris. It came into force in 1977 when it was ratified by 20 nations. It has since been ratified by 187 countries.[1] The properties to be included in the List initially were evaluated in a somewhat *ad hoc* fashion by the Advisory Bodies to the World Heritage Committee. The Convention "seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity". This sole criterion of "outstanding value to humanity" is noble but proved to be almost impossible to be clearly defined. An important development has been to establish standards of ten criteria for the management, presentation and promotion of World Heritage Sites, as put down in detail in the *Operational Guidelines for the Implementation of the World Heritage Convention* (Unesco, 2005). It has been claimed that "The scrutiny of these systems by the two Advisory Boards is now rigorous…" (Cleere, 2006:xxii). The requirement for inclusion in the List is now based on 10 criteria. Six criteria refer to Cultural, and four to Natural Sites. The former must "represent a masterpiece of human creative genius" (criterion 1) and can either be a building, architectural ensemble or landscape, or events or living traditions. The latter should "contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance" (criterion 6). The full list of criteria is given in Appendix I of the *Operational Guidelines* and is reported in our appendix.

[1] States of the World Heritage Convention as of 10.6.2010 according to http://whc.unesco.org/en/statesparties/, accessed on 5.8.2010. A comprehensive survey of the design and development of the World Heritage Convention and the corresponding institutions (the World Heritage Convention, the World Heritage Committee and the World Heritage Centre) is provided e.g. in Strasser (2002).

The World Heritage List in 2010 comprises 940 Sites,[2] 721 (or 77 percent) of which relate to culture, 192 to nature, and 27 are mixed, i.e. combine cultural and natural heritage. The World Heritage List has become highly popular and has often been dubbed the "flagship programme of UNESCO" (Strasser 2002: 216). Many World Heritage Sites are major attractions for cultural tourism, and are icons of national identity (Shackley, 2006:85). While the goal of the whole project is to protect Sites of central importance for humanity, not unexpectedly national interests dominate global interest. "The rhetoric is global: the practice is national" (Ashworth *et al.*, 2006:148). Francesco Bandarin, the former Director of the World Heritage Centre, adds "Inscription has become a political issue. It is about prestige, publicity and economic development" (Henley 2001). Some countries, in particular Western European states, are more active than others to secure Sites to be included in the List. 21 or 12 percent of the 178 nations participating in the Convention[3] have a seat in the World Heritage Committee. But these members nominated more than 30 percent of listed Sites between 1978 and 2004 (Van der Aa, 2005:81). Affluent countries seem to have benefited most from the Convention. According to a Report of the World Commission on Culture and Development published in 1999 the Sites on the World Heritage List "was conceived, supported and nurtured by the industrially developed societies, reflecting concern for a type of heritage that was highly valued in those countries". Moreover, many countries do not have the necessary conservation infrastructure allowing them to prepare nominations to the List at a sufficiently sustained pace to improve its representativity (Strasser 2002:226-7). According to the Convention the state parties must identify, and delineate the property (Article 3) and must ensure the identification, protection, conservation, presentation, and transmission to future generations (Article 4). These requirements put a heavy burden on countries whishing to put a site on the List.

This imbalance of World Heritage Sites according to continents and countries was present from the very beginning. It has become a subject of major concern within the

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[2] After the 34th ordinary session of the World Heritage Committee, held in Brasília on 25th July – 3rd August 2010, the World Heritage List contains a total number of 911 Sites. For our purposes, we count Sites extending over more than one country as many times as the number of countries involved, therefore obtaining a higher number of Sites. We also do not disregard the two delisted Sites. Methodological remarks are to be found in the notes to Table 1.

[3] There are 187 states parties in 2010 as mentioned above.

World Heritage Commission and Centre, UNESCO and beyond. The Director of the World Heritage Centre, Francesco Bandarin, even went so far as to call the World Heritage List "a catastrophic success" (Henley 2001). The ongoing discussion is focused on the representativity of the World Heritage List and the equitable representation of continents and countries in the World Heritage Committee (see, extensively Strasser 2002: 217- 245).

As a reaction to this imbalance, in 1994 the World Heritage Committee started the *Global Strategy for a Balanced, Representative and Credible World Heritage List*. It intends to raise the share of Non-European Sites as well as the share of living cultures, especially "traditional cultures" included in the List. Despite this explicit policy and intended strong action, "the immediate success of these efforts is questionable, however" (Strasser 2002: 226). This is reflected in the distribution of Sites included in the World Heritage List shown in Table 1.

Table 1: The World Heritage List according to types of heritage and continents, 2010.

The Table follows the UN distinction of continents. As can be seen, by far the largest part of all Sites (434 or 46 percent) on the List is located in Europe. The European predominance is particularly large for Cultural Sites (53 percent) and smaller for Natural Sites (23 percent).

The study of the World Heritage Convention and its manifestation in the World Heritage List has important *policy implications*. The major issue[4] is how the conflicting goals of the "protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity"(World Heritage Convention, 2005) can be made compatible with the goal of representativity cherished in the UN-system. This classical conflict between allocation (in this case of a global common good) and distribution is difficult to resolve. The countries of the world represented in the UN must first become fully aware of the conflict – which presently

[4] There are other policy issues which due to reasons of space cannot be considered here. For instance, there is the question of whether all countries with cultural or natural sites meeting the World Heritage criteria are part of the Convention, and whether all members have the necessary conservation infrastructure to successfully prepare nominations to the List meeting the strict requirements of the evaluation procedure (Strasser 2002:226).

tends to be evaded. To propose extreme solutions is not helpful: if the allocational goal of identifying, protecting and preserving cultural and natural sites is made an absolute, the distribution of Sites on the World Heritage List will be very unequal. In contrast, if the distributional goal is made an absolute many heritage sites well worth preserving for the world's future generations will be neglected; instead less important sites will be put on the List. As will be shown, and has also been observed by scholars involved in the World Heritage Centre (Strasser 2002: 225-6), the *Strategy for a Balanced, Representative and Credible World Heritage List* established in 1994 has not been able to successfully address this conflict: the distribution over continents and countries is still very uneven while many sites considered worth preserving according to the ten criteria of the Convention are not (yet) on the List. In order for this conflict between allocation and distribution to be successfully resolved by a discussion and bargaining process in the UN-system, it is necessary to be aware of the facts. Pure speculations about some continents and countries considered to be "preferred" while others feel "neglected" are not helpful for this process.

In order to contribute to this discussion process this paper discusses various distributional aspects of the UNESCO World Heritage List based on a statistical analysis. Our focus is on the "imbalance" of the existing List. We compare the *existing* distribution to *hypothetical* distributions of heritage sites which could be considered "balanced" from different points of view. Depending on what aspect of world heritage is considered to be relevant, different points of view emerge. This paper considers and discusses the deviation from an *equal distribution per country* (participating in the Convention), *per capita, per area* and *per income unit*. We conclude that the goals of a "balanced and representative" selection according to these points of view have not been achieved. We leave it to other scholars, in particular to philosophers and ethnologists, to consider whether it is *desirable* to have any of those "balanced" distributions of World Heritage Sites. Our intention is to present the facts on these distributions for a reasoned discussion to take place.

Section II presents a short overview of the literature. Sections III to VI consider the distributions of Sites on the UNESCO World Heritage List according to countries, to population size, to area, and to income. Section VII analyses to what extent these considerations are independent of each other. The last section concludes.

II. Literature

The central task of the World Heritage Convention - to protect the global public goods of "world cultural and natural heritage" and at the same time to achieve some measure of "representativity" among continents and countries - links up closely to various topics analysed in international organisations research. In particular, the issues at stake with World Heritage are related to the following topics:

- The role of *international organisations* in the provision of *global collective goods* or global commons, the respective international cooperation, international regimes and international institutions. Path breaking contributions are Keohane (1967), Russet and Sullivan (1971), Krasner (1983), Young (1989), and Rosenau (1992). More recent contributions are, for example, Young (1997) (for an application to the environment), Kaul, Grumberg and Stern (1999), Koremenos, Lipson and Snidal (2001) and Frey (2008).
- The *dysfunctions in international organisations,* most importantly Barnett and Finnemore (1971), Grant and Keohane (2005) and Carbone (2007). Principal-agent issues are addressed e.g. by Vaubel and Willet (1991), Frey (1997) and Vaubel (2005). A broader view is taken e.g. by Martinez-Diaz (2009).
- The *representativity of countries* in the international system and the respective organisations are dealt with, for example by Price (2003) and Peterson (2010), or by Keck and Sikkink (1998) or Carpenter (2007) in the context of advocacy frameworks and civil society.
- *Political influences* in international organisations are the subject of studies by e.g. Stein (1984), Frey and Schneider (1986), Thacker (1999), Voeten (2000), Bird and Rowlands (2001), Oatley and Yakee (2004), Stutzer and Frey (2005), Dreher and Jensen (2007), Dreher, Sturm and Vreeland (2009), and Martinez-Diaz (2009).

International relations research has also specifically dealt with issues related to World Heritage. Examples are Joyner (1986), Serageldin (1999), Navrud and Ready (2003), Mazzanti (2003), Francioni (2003-4), Del Saz Salazar and Montagud Marques (2005) and Choi, Rikkie, Papandreu and Bennett (2010). In economics, only few works deal

with UNESCO World Heritage, the doctoral dissertation by van der Aa (2005), the book by Santagata, de Caro and Marrelli (2008) and the papers by Bertacchini, Saccone and Santagata (2002) and Frey and Pamini (2009b) being exceptions. A comprehensive analysis of general heritage issues is provided in Peacock and Rizzo (2008). Other economic analyses mainly evaluate the utility of preserving the past as well as financial consequences.[5]

There is an extensive literature specifically on World Heritage and on the UNESCO programme.[6] The following aspects have received special attention: the process of designation with respect to its formal nature (Strasser 2002), the stakeholder groups participating and their politics (e.g. Leask, 2006; Millar, 2006); the consequences of inclusion in the World Heritage List, especially with respect to tourism (e.g. Cochrane *et al*., 2006; Tunney, 2005); visitor management (e.g. McKercher *et al*., 2001; Shackley, 2006); as well as a large number of case studies devoted to individual Sites (e.g. for the Yellow Mountain in China Li Fung *et al*., 2006; for Stonehenge Mason *et al*., 2006; or for Machu Picchu Regalado-Pezúa *et al*., 2006).

III. The distribution of Sites according to countries.

It could be argued that *every country* in our planet should have the same importance with respect to its contribution to the heritage of mankind. Every country should have the same number of Sites on the List. This point of view emphasizes that every country should be of equal worth for an international organisation such as the UN and its agency UNESCO. This applies to "culture" in its broadest definition but also to "nature": each country can be considered to have aspects of Cultural and Natural Sites worth preserving. This particular point of view refrains from any attempt to compare the Sites between countries.

Some countries in the world have a large number of World Heritage Sites while other countries have few, and a considerable number have none. The distribution is highly

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[5] See, for instance Benhamou (1996, 2003); Frey (1997); Greffe (1999); Klamer & Throsby (2000); Mossetto (1994); Mossetto & Vecco (2001); Netzer (1998); Peacock (1978, 1995); Rizzo (2006); Streeten (2006); Throsby (1997a, 1997b, 2003). The consequences of being listed on the number of visitors frequenting these Sites, are studied e.g. in Bonet (2003) or Tisdell and Wilson (2002).

[6] Recent contributions are e.g. Leask and Fyall (2006), Harrison and Hitchcock (2005), van der Aa (2005), Leask and Yeoman (2004), Howard (2003).

skewed as can be seen in Table 2. It exhibits those countries with a large number of ten or more Sites on the World Heritage List.

Table 2: Countries with a large number (ten or more) of Sites on the World Heritage List, 2010.

The list contains 25 countries, 14 (or 56 percent) of which are located in Europe, 5 each in America and Asia-Pacific and 1 in the Arabian countries. The very top is formed by six countries with more than 30 Sites. The largest number of Sites is in Italy, closely followed by Spain. Thereafter follow China, Germany, France and Mexico. The group of 9 countries having more than 20 Sites is completed by India, the United Kingdom, Russia and the United States. As can also be seen in the Table, by far the largest part of Sites in all these countries is Cultural. In contrast, there are some countries with a larger share of Sites defined as Natural rather than Cultural. This is especially the case for Australia (11 Natural vs 3 Cultural Sites), the United States (12 vs 8), Canada (9 vs 6). The US have the largest number of Natural Sites (12), closely followed by Australia (11), Canada, Russia, China and Brazil.
A surprisingly large number of countries on the globe have no Site at all, be it Cultural or Natural. 41 of the 187, or more than one fifth, signature countries find themselves in this position. Most of them are in Africa (15) and in Asia-Pacific (10). While some of these countries are small (examples being Antigua and Barbuda and Guyana in the Americas, or Fiji in Asia and Pacific), others are sizeable (such as Angola or Congo in Africa, or Jamaica in the Americas). All of the countries just mentioned joined the World Heritage Convention many years ago (between 1977 and 1990). The explanation for not having any Sites on the List, therefore is unlikely to lie in insufficient time to prepare a nomination. It is rather surprising that a country such as Bhutan (which has been a member of the Convention since 2001) does not have one single Site on the UNESCO List, though it would seem obvious that its *dzongs* well deserve being part of the cultural heritage of the world. It is similarly surprising that countries with beautiful and often visited islands such as Fiji or the Maldives do not have a Natural Site in the World Heritage List. In contrast to the other continents,

only four countries in Europe have no Site. These countries (Macedonia, Montenegro and Slovenia) have only recently become independent or are very small (Monaco)[7].

Cultural Sites

Table 3 focuses on Cultural heritage Sites. In Africa, 24 nations have no such Site, and 10 nations have just one. The situation is quite similar in America and Asia-Pacific; there is a sizeable number of countries with no or only one Cultural Site on the World Heritage List.

Table 3: Countries with no or only one Cultural Site on the World Heritage List, 2010

Natural Sites

Table 4 considers Natural Sites on the UNESCO World Heritage List. It shows those countries with the largest number of such Sites.

Table 4: Countries with more than two Natural Sites on the World Heritage List, ranked by quantity and region, 2010

Table 4 shows that the distribution of Natural Sites in the World Heritage List is considerably more balanced than is the case for Cultural Sites. There are 4 sub-Saharan African countries with more than two Sites with the Democratic Republic of the Congo being on top with no less than 5 Sites, followed by Tanzania with 4 Sites. While Arabia is not well represented, the other 3 continents distinguished by the UN all have a substantial number of Natural Sites on the List. The United States, Australia, Canada, Russia and China are on top of the List, with 12, 11, 9, 9 and 8 Natural Sites, respectively. Asia and Pacific has 5 countries, the Americas 7, and Europe 6 countries with more than two Natural Sites on the List. The more equal

[7] More precisely, Montenegro, Macedonia and Slovenia presently do have Sites that have been listed at the time of the Yugoslavian Federation. As neither Macedonia, nor Montenegro nor Slovenia received any Site since their independence, they are treated as without Sites in our analysis.

distribution of Natural compared to Cultural Sites thus is due to the fact that Africa is well represented, and not that the other continents (except Arabia) have few Sites listed.

IV. Equal distribution according to population size

It could be argued that the relevant unit to be considered on the World Heritage List is the *size of the population* per country rather than countries as such. This view takes into account that China with a population of 1,320 million should have more Sites on the List than a small, or very small country such as Monaco (32,700 inhabitants) or Luxemburg (480,000 inhabitants). This point of view may be considered to be most appropriate with respect to culture: each person of the world may be taken to have the same capacity to produce cultural goods. These goods may be of extremely different types and forms and would certainly not correspond to what are sometimes called "high" cultures, such as those of classical Egypt, Greece or Rome. However, we must take into account that the cultural production may have occurred far back in the past when the population size was quite different from today. This aspect varies from country to country, and we therefore focus on World Heritage Sites according to present population size.

Somewhat surprisingly, there is only one country in Africa with a large number of Natural Sites per capita. Taking as a cut-off point 50 or more Natural Sites per 100 million inhabitants, there is only the Seychelles (with 2,352 Sites per 100 million inhabitants) which is due to having two such Sites and a population of only 85,000 (Table 5).

Table 5: Countries with more than 50 Natural Sites per 100 million population on the World Heritage List, 2010

There are 6 countries in the Americas with more than 50 Natural Sites per 100 million inhabitants. This is due to one Site and small population size (Belize 300,000; Dominica 73,000; Saint Lucia 168,000 and Suriname 458,000), combined with having three Sites (Costa Rica, Panama). Asia-Pacific has only two countries making the cut, Australia with no less than 11 Natural Sites, and the Solomon Islands with its small

population of less than half a million persons. In Arabia, no country, and in Europe one country (Island with its small population) makes the cut.
It can be concluded that looking at the UNESCO World Heritage List in terms of per capita representation reveals a more equal distribution than the number per country but that there are still great differences. A per capita view favours small countries and to some extent improves the position of Africa, but this only holds for Natural, not for Cultural Sites.

V. *Equal distribution according to area*

It could well be argued that ”balance” should relate to the *size of the country* as measured by the area in square kilometres. The larger a country, the more likely it is to find some Site worth including in the List. This argument seems to be more convincing for Natural than for Cultural Sites. A large country can be expected to have more different landscapes, some of which may fit the UNESCO criteria. Particular African countries do well with respect to Natural Sites per square kilometre (sqkm).

Table 6: Countries with more than 10 Natural Sites per million square kilometres on the World Heritage List, 2010

As can be seen in Table 6, sub-Saharan Africa features four countries with more than 10 Natural Sites per million sqkm. Two of these are countries with a small area: The Seychelles (460 sqkm) and Malawi (94,000 sqkm). The same holds for America where small countries (Belize, Costa Rica, Dominica, Panama, and Saint Lucia) dominate the List, with Cuba (109,000 sqkm) having the largest area. Of the four Asian countries with more than 10 Natural Sites per million sqkm, four (Kiribati, Solomon Islands, South Korea and Sri Lanka) are again smaller than 100,000 sqkm. No Arabic country makes the cut-off point. Europe does quite well. There are 9 countries with more than 10 Natural Sites per million square kilometres, The Slovak Republic and Switzerland surprise with their high number of Natural Sites in such a small territory.

VI. *Equal distribution according to income*

The distribution of Sites on the UNESCO World Heritage List may also be looked at from yet another perspective, namely *the capacity to successfully present nominations and to get them on the List*. It may be argued that those continents and countries with higher *per capita income* tend to have a better infrastructure to present a well-formulated nomination, and have superior bargaining position to have a site put on the List. This view assumes that the choice of Sites for the UNESCO List is influenced by bureaucratic and rent-seeking activities rather than by any objective factors as encapsulated in the ten official criteria.

Table 7: Ten richest and ten poorest countries in the World Heritage List, 2010

Despite the fact that all ten richest countries in the World Heritage List have at least a Cultural Site, the high number of Sites among the ten poorest countries suggests that the World Heritage List does not simply reflect bureaucratic or political power based on per capita income. The cynical view that the whole List is simply a product of economic power is unwarranted. Rather, the List does take into account considerations beyond income levels.

VII. Econometric estimates

The three points of view of how "balanced" the distribution of countries on the World Heritage List is can be combined in order to see to what extent they are independent of each other. This is done by estimating simultaneously how the "balanced" distributions affect the distribution of Sites on the World Heritage List. Table 8 shows how far considerations of population size, area, and income affect inclusion of particular countries in the UNESCO List.

Tab: 8: The influence of three "balanced" distributions on the number of total Sites on the World Heritage List, per country, 2010

The coefficients reported in Table 8 are estimated via a count regression, the appropriate modelling technique as the dependent variable (the number of Sites in a country included in the World Heritage List) is only allowed to take integers

(Wooldridge, 2002) and is very unlikely to be normally distributed (Wooldridge, 2003). Our estimates show that all three considerations have a statistically significant effect (at the 99% or 95% level) on the *total* number of Sites per country. This result suggests that inclusion in the UNESCO World Heritage List is the more likely the larger the population size, the larger the area, and the higher average income are in the various countries.

Specifically, two different specifications are used to analyse the total number of Sites on the List. Model (1) in Table 8 presents the estimated coefficients of a negative binomial regression rather than those of a Poisson regression in order to cope with so-called overdispersion in the data, i.e. a variance greater than the expected value, which the Poisson model could not account for (Cameron *et al.*, 2005). Model (1) shows that the larger the population size, the area and average income of a particular country, the more Sites it is likely to have included in the World Heritage List.

The next two columns in Table 8 refer to model (2) and show the estimated coefficients based on a zero inflated negative binomial regression, appropriate for count data with many zeros (as discussed above, many countries do not have one single Site on the List). The first column of model (2) considers a Bernoulli process estimated by a logit regression. The estimated coefficients reflect whether the countries are *not* on the List, and this first part of the zero inflated count model is often called the inflation equation. We can see that area and income do not affect this probability in a statistically significant way, and that population size lowers the probability of having no Site with 90% significance. The second column of model (2) shows, *provided* that a country has at least a Site on the List, *how large* their number is, estimating a negative binomial count process. This second part of the zero inflated count model is often called the count equation. According to that estimate, once a country has at least one Site on the UNESCO List, the probability of getting additional Sites on it is higher the larger the population size, the area and average income is.[8] Both the Voung test and the likelihood ratio test show that the zero inflated count regression of model (2) is superior to the simple count regression of model (1).

[8] The sizes of the estimated effects are most interesting in the case of Natural Sites, and their interpretation is therefore discussed following Table 10.

Table 9 presents the estimates for Cultural Sites per country and reflects the same modelling as in Table 8. Model (1) is a negative binomial regression and model (2) is a zero inflated negative binomial regression.

Table 9: The influence of three considerations on the number of Cultural Sites on the World Heritage List, per country, 2010

According to the estimates in model (1) of Table 9 based on a negative binomial regression, population size and average income positively affect the probability for a country of getting on the UNESCO List of Cultural Sites. The inflation equation of model (2) considers again a Bernoulli process estimated by a logit regression. The estimated coefficients reflect whether the countries are *not* on the List. The three considerations are either not statistically significant, or only at the 90% level. The count equation of model (2) shows, *provided* that a country has at least one Cultural Site on the List, *how large* their number is, estimating a negative binomial count process. According to that estimate, once a country has a Cultural Site on the UNESCO List, the probability of getting additional Sites on it is the higher, the larger the population size and average income are, while the size of the country's area does not have any effect. Again, both the Vuong and the likelihood ratio tests support the superiority of the zero inflated count regression over the simple count regression in explaining our data.

Table 10 deals with the question to what extent the three considerations affect the probability of a country of getting on the UNESCO List for Natural Sites.

Table 10: The influence of three considerations on the number of Natural Sites on the World Heritage List, per country, 2010

Model (1) shows the estimates of the negative binomial regression suggesting that all three considerations positively affect the number of Sites a country gets on the List of Natural Sites (though population size only at the 90% level of statistical significance). The size of the coefficients is remarkable and can be interpreted in the following way: We exponentiate the estimated coefficient and get the so-called incidence-rate ratio (IRR), i.e. the factor change in the expected count of Sites for a unit increase in the

independent variable. The country population has for instance an IRR = $e^{0.119}$ = 1.1264, which means that an increase in population by 100 mil. (i.e. one unit in our scale) leads to a relative increase of the expected number of Natural Sites of IRR – 1 = 12.64%. The country area has an IRR = $e^{0.223}$ = 1.2498. Increasing *ceteris paribus* the country area by one million sqkm leads to a relative increase of the expected number of Natural Sites of 24.98%. Finally, the GDP/capita has a IRR = $e^{0.022}$ = 1.0222. All thing being equal, a country with a GDP/capita 1000 USD higher experiences an increase of 2.22% in its expected number of Natural Sites.

In model (2) of Table 10 we extend the modelling of the number of Natural Sites per country by means of a zero inflated model, supported over model (1) by both the Vuong test and the likelihood ratio test, consistently with Table 8 and Table 9. The inflation equation of model (2) of Table 10 considers again a Bernoulli process estimated by a logit regression. The estimated coefficients are the logits (logarithmic odds) for the probability of having zero Natural Sites on the List. The coefficient of -14.430** indicates that, *ceteris paribus*, a country with a larger population is *more* likely to have at least one Natural Site on the List, while the two other considerations have no statistically significant effect. When the population size is increased by one unit (i.e. by 100 million persons in our scale), the factor change in the odds of not having any Site is $e^{-14.430} = 0$. The change in the odds of not having any Site is therefore $e^{-14.430} – 1 = 0 – 1 = -100\%$. It is thus almost impossible for a country with at least 100 million inhabitants not to have any Natural Site on the World Heritage List. This result confirms the great importance of a large population size to get on the List for Natural Sites.

The respective coefficient (0.068**) referring to population size in the count equation of model (2) of Table 10 shows that, *provided* that a country has at least one Natural Site on the List, the more populous a country is the more Natural Sites it is likely to possess on the World Heritage List of Natural Sites. The coefficient interpretation is as described in model (1). An increase in the population size by 100 million persons leads to a relative increase in the expected number of Natural Sites on the List by 7.04%. Country area and per capita income also play a positive role with respect to the number of Natural Sites. The coefficient of 0.150*** referring to area suggests that, *ceteris paribus*, an increase in the country area by one million sqkm leads to a relative increase of the expected number of Natural Sites of 16.18%. A country whose

average income is higher by 1,000 USD is expected to have a 2.22% larger number of Natural Sites on the List. These percentage effects can, of course, not be directly compared to each other because they refer to totally different determinants (100 million persons, one million sqkm, and 1,000 USD per capita income) but the qualitative results of our estimates support the discussion of the previous parts of the paper.

VIII. *Conclusions*

The intention of this paper is to provide a simple statistical analysis of the distribution of the UNESCO World Heritage List according to various characteristics. The officially stated intention of this world organisation is to protect *global* heritage, and not the heritage of particular cultures or countries. At the same time an "equitable" or "fair" representation of each country is an important consideration in the UN-system. The allocational goal of the World Heritage Convention of "identification, protection and preservation of cultural and natural heritage around the world considered being of outstanding value to humanity" is in conflict with the distributional goal of the representativity of the member continents and countries.

In order to enable a well-founded discussion of this conflict, and to contribute to a process considered acceptable by the member states of the Convention, this paper focuses on the *distribution of Sites* on the existing World Heritage List between continents and countries. We compare the *existing* distribution to *hypothetical* distributions which may be considered "balanced" from a particular point of view. We show that the World Heritage List is indeed unbalanced with respect to a distribution of Sites according to population, area or per capita income. The *distribution per inhabitant* of a continent or country is more equal than the number per country but there are still considerable differences. This view favours small countries and to some extent the position of Africa, but the latter only holds for Natural Sites. Europe and its individual countries have a much larger number of Cultural Sites per inhabitant than do the other continents. With respect to the *distribution per area* there is a quite equal distribution for Natural Sites, except for Arabia. *Income per capita*, which may be thought to reflect bureaucratic and political influences, is shown not to have the influence often supposed to exist. Indeed, Africa does well both with respect to the

number of Cultural and Natural Sites per unit of income. The List thus takes into account aspects beyond income levels. A simultaneous estimate tests to what extent the three "balanced" distributions affect the present World Heritage List. Income per capita again is revealed to play a significant marginal role in explaining the number of Sites on the List. The empirical analysis suggests that the goals of a "balanced and representative" selection according to *these particular points of view* have not been achieved.

This paper refrains from judging whether the distributions of Cultural and Natural Sites on the UNESCO's World Heritage List according to continents and countries is appropriate or not. Rather, the purpose is *to reveal facts* about the existing distribution by comparing it to three types of "balanced" distributions. These facts are intended to help a reasoned discussion. It is not evaluated here whether it is *desirable* to have any of those "balanced" distributions of World Heritage Sites; this task must be left to the discussion process in the World Heritage Convention.

Appendix – Ten selection criteria for inclusion in the WH List

The following ten applicable selection criteria for inclusion in the World Heritage List are put down in detail in the *Operational Guidelines for the Implementation of the World Heritage Convention* (Unesco, 2005) and accessible online:[9]

1. To represent a masterpiece of human creative genius;
2. To exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;
3. To bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;
4. To be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
5. To be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;
6. To be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria);
7. To contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
8. To be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
9. To be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
10. To contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

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[9] http://whc.unesco.org/en/criteria/, accessed on 13.11.2009

Appendix – Population, Area and GDP of continents

Table A: Population, Area and GDP of continents, 2007

Appendix – Countries per continent

The country classification per continent follows the scheme used by the UNESCO World Heritage, with the single exception that we treat Canada and the United States as part of America instead of Europe. Africa considers only sub-Saharan countries, since those north of the Sahara are classified under Arabian countries.

In *sub-Saharan Africa* we have following 44 states parties of the World Heritage convention: Angola; Benin; Botswana; Burkina Faso; Burundi; Cameroon; Cape Verde; Central African Republic; Chad; Comoros; Congo; Cote d'Ivoire; Democratic Republic of the Congo; Djibouti; Eritrea; Ethiopia; Equatorial Guinea; Gabon; Gambia; Ghana; Guinea; Guinea-Bissau; Kenya; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritius; Mozambique; Namibia; Niger; Nigeria; Rwanda; Sao Tome and Principe; Senegal; Seychelles; Sierra Leone; South Africa; Swaziland; Tanzania; Togo; Uganda; Zambia and Zimbabwe.

The *Americas* contain 34 countries which are member of the World Heritage Convention: Antigua and Barbuda; Argentina; Barbados; Belize; Bolivia; Brazil; Canada; Chile; Colombia; Costa Rica; Cuba; Dominica; Dominican Republic; Ecuador; El Salvador; Grenada; Guatemala; Guyana; Haiti; Honduras; Jamaica; Mexico; Nicaragua; Panama; Paraguay; Peru; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Suriname; Trinidad and Tobago; United States; Uruguay and Venezuela.

The 18 *Arabian* countries that adhered the World Heritage Convention are Algeria; Bahrain; Egypt; Iraq; Jordan; Kuwait; Lebanon; Libya; Mauritania; Morocco; Oman; Qatar; Saudi Arabia; Sudan; Syria; Tunisia; United Arab Emirates and Yemen.

Asia and Oceania are classified together and account for 41 countries: Afghanistan; Australia; Bangladesh; Bhutan; Cambodia; China; Cook Islands; Fiji; India; Indonesia; Iran; Japan; Kazakhstan; Kiribati; Kyrgyz Republic; Laos; Malaysia; Maldives; Marshall Islands; Micronesia; Mongolia; Myanmar; Nepal; New Zealand; Niue; North Korea; Pakistan; Palau; Papua New Guinea; Philippines; Samoa;

Solomon Islands; South Korea; Sri Lanka; Tajikistan; Thailand; Tonga; Turkmenistan; Uzbekistan; Vanuatu and Vietnam.

49 state parties of the World Heritage Convention are in *Europe*: Albania; Andorra; Armenia; Austria; Azerbaijan; Belarus; Belgium; Bosnia and Herzegovina; Bulgaria; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Georgia; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Latvia; Lithuania; Luxembourg; Macedonia; Malta; Moldova; Monaco; Montenegro; Netherlands; Norway; Poland; Portugal; Romania; Russia; San Marino; Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Turkey; Ukraine; United Kingdom; Vatican and Yugoslavia (now Serbia).

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Table 1: The World Heritage List according to types of heritage and continents, 2010.

Region	Total Sites	Cultural Sites	Natural Sites	Mixed Sites
Africa (sub-Saharan)	81	43	35	3
Americas	162	101	57	4
Asia and Pacific	197	137	51	9
Arabian Countries	66	60	5	1
Europe	434	380	44	10
Total	940	721	192	27

Note: 21 Heritage Sites go across two countries each, one Site goes across ten countries. This and all further tables count Sites as many times as the number of countries involved. We do not count the Old City of Jerusalem (ID 48), because it is associated with no country. Sites given to the Socialist Federal Republic of Yugoslavia are still counted under Serbia, although they now are listed under Croatia, Macedonia, Montenegro and Slovenia. Itchan Kala (ID 543) is counted under Russia, because in 1990 Uzbekistan still was part of it. We do not count the Bialowieza Forest (ID 33) for Belarus, because in 1979 neither Belarus nor USSR was in the WH Convention. We do not count the Historic Center of Rome (ID 91) for the Holy See, because in 1980 it was not yet member of the WH Convention. Since we are interested into the election process, we include the two delisted Sites (Arabian Oryx Sanctuary in Oman, listed in 1994 and delisted in 2007 ID 654, as well as Dresden Elbe Valley in Germany, listed in 2004 and delisted in 2009 ID 1156).
Source: http://whc.unesco.org/en/list, accessed on 30.8.2010.

Table 2: Countries with a large number (ten or more) of Sites in the World Heritage List, 2010.

Country	Total	Cultural	Natural	Mixed
Italy	44	42	2	0
Spain	41	36	3	2
China	40	28	8	4
France	35	31	3	1
Germany	34	32	2	0
Mexico	31	27	4	0
India	28	23	5	0
United Kingdom	28	23	4	1
Russia	25	16	9	0
United States	21	8	12	1
Australia	18	3	11	4
Brazil	18	11	7	0
Greece	17	15	0	2
Canada	15	6	9	0
Japan	14	11	3	0
Sweden	14	12	1	1
Poland	13	12	1	0
Portugal	13	12	1	0
Czech Republic	12	12	0	0
Iran	12	12	0	0
Peru	11	7	2	2
Yugoslavia	11	7	3	1
Belgium	10	10	0	0
South Korea	10	9	1	0
Switzerland	10	7	3	0
Selection Total	525	412	94	19
WH Total	940	721	192	27

Note: The same remarks as for Table 1 apply. Under Yugoslavia we consider the Sites of the whole Socialist Federal Republic of Yugoslavia and those of Serbia after the country disintegration.
Source: http://whc.unesco.org/en/list, accessed on 30.8.2010.

Table 3: Countries with no or only one Cultural Site in the World Heritage List, 2010

	Without Any Cultural Site		With Only One Cultural Site	
Region	Country	Entry Year	Country	Entry Year
Africa (sub-Saharan)	Angola	1991	Benin	1982
	Burundi	1982	Botswana	1998
	Cameroon	1982	Burkina Faso	1987
	Central African Republic	1980	Cape Verde	1988
	Chad	1999	Madagascar	1983
	Comoros	2000	Malawi	1982
	Congo	1987	Mozambique	1982
	Cote d'Ivoire	1981	Namibia	2000
	Democratic Republic of the Congo	1974	Togo	1998
			Uganda	1986
	Djibouti	2007		
	Eritrea	2001		
	Gabon	1986		
	Guinea	1979		
	Guinea-Bissau	2006		
	Lesotho	2003		
	Liberia	2002		
	Niger	1974		
	Rwanda	2000		
	Sao Tome and Principe	2006		
	Seychelles	1980		
	Sierra Leone	2005		
	Swaziland	2005		
	Zambia	1984		
Americas	Antigua and Barbuda	1983	Dominican Republic	1985
	Barbados	2002	El Salvador	1991
	Belize	1990	Haiti	1980
	Costa Rica	1977	Honduras	1979
	Dominica	1995	Nicaragua	1979
	Grenada	1998	Paraguay	1988
	Guyana	1977	Saint Kitts and Nevis	1986
	Jamaica	1983	Suriname	1997
	Saint Lucia	1991	Uruguay	1989
	Saint Vincent and the Grenadines	2003		
	Trinidad and Tobago	2005		
Asia and Pacific	Bhutan	2001	Kyrgyz Republic	1995
	Cook Islands	2009	Malaysia	1988
	Fiji	1990	Mongolia	1990
	Kiribati	2000	North Korea	1998

	Maldives	1986	Papua New Guinea	1997
	Marshall Islands	2002	Vanuatu	2002
	Micronesia	2002		
	Myanmar	1994		
	New Zealand	1984		
	Niue	2001		
	Palau	2002		
	Samoa	2001		
	Solomon Islands	1992		
	Tajikistan	1992		
	Tonga	2004		
Arabian Countries	Kuwait	2002	Bahrain	1991
	Qatar	1984	Mauritania	1981
	United Arab Emirates	2001	Saudi Arabia	1978
			Sudan	1974
Europe	Macedonia	1997	Andorra	1997
	Monaco	1978	Iceland	1995
	Montenegro	2006	Luxembourg	1983
	Slovenia	1992	Moldova	2002
			San Marino	1991
			Vatican	1982

Note: The same remarks as for Table 1 apply. Montenegro has a Cultural Site that has been listed at the time of the Socialist Federal Republic of Yugoslavia and is not counted here.
Source: http://whc.unesco.org/en/list, accessed on 30.8.2010.

Table 4: Countries with more than two Natural Sites in the World Heritage List, ranked by quantity and region, 2010

Africa (sub-Saharan)		Asia and Pacific	
Country	Natural Sites	Country	Natural Sites
Democratic Republic of the Congo	5	Australia	11
Tanzania	4	China	8
Cote d'Ivoire	3	India	5
South Africa	3	Indonesia	4
		Japan	3
Americas		**Europe**	
Country	Natural Sites	Country	Natural Sites
United States	12	Russia	9
Canada	9	United Kingdom	4
Brazil	7	France	3
Argentina	4	Spain	3
Mexico	4	Switzerland	3
Costa Rica	3	Yugoslavia	3
Panama	3		

Note: The same remarks as for Table 1 apply. The three Yugoslavian Natural Sites were listed in 1979 (ID 98, now Croatia), in 1980 (ID 100, now Montenegro) and in 1986 (ID 390, now Slovenia) at the time of the Socialist Federal Republic of Yugoslavia.
Source: http://whc.unesco.org/en/list, accessed on 30.8..2010.

Table 5: Countries with more than 50 Natural Sites per 100 million population in the World Heritage List, 2010

Region	Country	Population	Natural Sites	Sites per 100 million population
Africa (sub-Saharan)	Seychelles	85,032	2	2,352.06
Americas	Belize	303,991	1	328.96
	Costa Rica	4,462,193	3	67.23
	Dominica	72,793	1	1,373.75
	Panama	3,340,605	3	89.80
	Saint Lucia	167,976	1	595.33
	Suriname	457,686	1	218.49
Asia and Pacific	Australia	21,000,000	11	52.34
	Kiribati	95,067	1	1,051.89
	Solomon Islands	495,362	1	201.87
Europe	Iceland	310,997	1	321.55

Note: The same remarks as for Table 1 apply. Sites per capita are reported per 100 million inhabitants. The population figures are for 2007. Afghanistan, the Cook Islands, Iraq, Niue and the Vatican are not considered because of missing population data.
Source: http://whc.unesco.org/en/list, accessed on 30.8.2010. World Bank Development Indicators.

Table 6: Countries with more than 10 Natural Sites per million square kilometres in the World Heritage List, 2010

Region	Country	Area in sqkm	Sites	Sites per 1 million km^2
Africa (sub-Saharan)	Malawi	94,080	1	10.63
	Senegal	192,530	2	10.39
	Seychelles	460	2	4,347.83
	Uganda	197,100	2	10.15
Americas	Belize	22,810	1	43.84
	Costa Rica	51,060	3	58.75
	Cuba	109,820	2	18.21
	Dominica	750	1	1,333.33
	Panama	74,430	3	40.31
	Saint Lucia	610	1	1,639.34
Asia and Pacific	Kiribati	810	1	1,234.56
	Nepal	143,000	2	13.99
	Solomon Islands	27,990	1	35.73
	South Korea	98,730	1	10.13
	Sri Lanka	64,630	2	30.94
Europe	Bulgaria	108,640	2	18.41
	Denmark	42,430	1	23.57
	Hungary	89,610	1	11.16
	Netherlands	33,880	1	29.52
	Portugal	91,500	1	10.93
	Slovak Republic	48,100	2	41.58
	Switzerland	40,000	3	75.00
	United Kingdom	241,930	4	16.53
	Yugoslavia	254,863	3	11.77

Note: The same remarks as for Table 1 apply. Sites per area are reported per million square kilometres. The population figures are for 2007. The Cook Islands, Niue and the Vatican are not considered because of missing area data. The three Yugoslavian Natural Sites were listed in 1979 (ID 98, now Croatia), in 1980 (ID 100, now Montenegro) and in 1986 (ID 390, now Slovenia) at the time of the Socialist Federal Republic of Yugoslavia. The reported Yugoslavian area is the sum of the 2007 areas of the countries that Yugoslavia was composed of.
Source: http://whc.unesco.org/en/list, accessed on 30.8.2010. World Bank Development Indicators.

Table 7: Ten richest and ten poorest countries in the World Heritage List, 2010

	Country	GDP per capita (USD)	Total Sites	Cultural Sites	Natural Sites
Ten richest countries	Luxembourg	56,189.01	1	1	0
	Norway	42,380.98	7	6	1
	Japan	40,744.91	14	11	3
	United States	38,095.82	21	8	12
	Switzerland	37,590.63	10	7	3
	Iceland	37,392.09	2	1	1
	San Marino	33,535.80	1	1	0
	Denmark	33,003.02	4	3	1
	Sweden	32,564.77	14	12	1
	Ireland	32,334.43	2	2	0
Ten poorest countries	Tajikistan	230.26	1	1	0
	Central African Republic	228.02	1	0	1
	Ethiopia	174.01	8	7	1
	Niger	168.70	2	0	2
	Malawi	152.98	2	1	1
	Eritrea	149.18	0	0	0
	Liberia	141.07	0	0	0
	Guinea-Bissau	130.09	0	0	0
	Burundi	101.23	0	0	0
	Democratic Republic of the Congo	93.95	5	0	5

Note: The same remarks as for Table 1 apply. The GDP per capita figures are for 2007 and refer only to the countries parties of the World Heritage Convention in 2010. Afghanistan, Andorra, United Arab Emirates, Bahrain, Barbados, the Cook Islands, Cuba, Dominica, Iraq, Kuwait, Monaco, Myanmar, Niue, Oman, North Korea, Qatar, Sao Tome and Principe, Turkmenistan, the Vatican and Zimbabwe are not considered because of missing GDP/capita data.

Source: http://whc.unesco.org/en/list, accessed on 30.8.2010. World Bank Development Indicators.

Table 8: The influence of three considerations on the **total number of Sites** in the World Heritage List, per country, 2010

	(1)	(2)	
	Count eq. (Neg. Bin.)	Inflation eq. (Logit)	Count eq. (Neg. Bin.)
Population (100 mil.)	0.249***	-46.666*	0.209***
	(0.0936)	(27.92)	(0.0700)
Area (mil. sqkm)	0.113**	-5.440	0.095**
	(0.0462)	(7.190)	(0.0381)
GDP/capita (USD 1,000)	0.053***	-0.163	0.047***
	(0.00896)	(0.140)	(0.00802)
Constant	0.895***	0.801	1.093***
	(0.114)	(0.680)	(0.112)
ln(alpha)	-0.158		-0.456***
	(0.146)		(0.160)
Observations	166	166	
Log likelihood	-422.9	-412.2	

Note: Standard errors in parentheses: *** p < 0.01, ** p < 0.05, * p < 0.1. The Vuong test supports the zero-inflated model (2) with 0.0175 significance. The LR chi2(4) = 21.50*** also supports model (2) over model (1). The same remarks as for Table 1 apply. The population, area and GDP per capita figures are for 2007 and refer only to the countries parties of the World Heritage Convention in 2010. Afghanistan, Andorra, United Arab Emirates, Bahrain, Barbados, the Cook Islands, Cuba, Dominica, Equatorial Guinea, Iraq, Kuwait, Monaco, Myanmar, Niue, Oman, North Korea, Qatar, Sao Tome and Principe, Turkmenistan, the Vatican and Zimbabwe are not considered because of missing data.

Source: http://whc.unesco.org/en/list, accessed on 30.8.2010. World Bank Development Indicators.

Table 9: The influence of three considerations on the number of **Cultural Sites** in the World Heritage List, per country, 2010

	(1)	(2)	
	Count eq. (Neg. Bin.)	Inflation eq. (Logit)	Count eq. (Neg. Bin.)
Population (100 mil.)	0.275**	-82.314*	0.222***
	(0.111)	(38.86)	(0.0780)
Area (mil. sqkm)	0.074	-2.792	0.052
	(0.0502)	(3.423)	(0.0408)
GDP/capita (USD 1,000)	0.060***	-0.175	0.051***
	(0.0106)	(0.129)	(0.00934)
Constant	0.604***	1.787**	0.869***
	(0.133)	(0.814)	(0.131)
ln(alpha)	0.111		-0.213
	(0.150)		(0.164)
Observations	166		166
Log likelihood	-385.4		-370.7

Note: Standard errors in parentheses: *** p < 0.01, ** p < 0.05, * p < 0.1. The Vuong test supports the zero-inflated model (2) with 0.0053 significance. The LR chi2(4) = 29.54*** also supports model (2) over model (1). The same remarks as for Table 1 apply. The population, area and GDP per capita figures are for 2007 and refer only to the countries parties of the World Heritage Convention in 2010. Afghanistan, Andorra, United Arab Emirates, Bahrain, Barbados, the Cook Islands, Cuba, Dominica, Equatorial Guinea, Iraq, Kuwait, Monaco, Myanmar, Niue, Oman, North Korea, Qatar, Sao Tome and Principe, Turkmenistan, the Vatican and Zimbabwe are not considered because of missing data.

Source: http://whc.unesco.org/en/list, accessed on 30.8.2010. World Bank Development Indicators.

Table 10: The influence of three considerations on the number of **Natural Sites** in the World Heritage List, per country, 2009

	(1)	(2)	
	Count eq. (Neg. Bin.)	Inflation eq. (Logit)	Count eq. (Neg. Bin.)
Population (100 mil.)	0.119*	-14.430**	0.068**
	(0.0614)	(6.18)	(0.0273)
Area (mil. sqkm)	0.223***	-2.967	0.150***
	(0.0427)	(2.927)	(0.0206)
GDP/capita (USD 1,000)	0.022**	-0.0315	0.0223***
	(0.00868)	(0.0227)	(0.00634)
Constant	-0.548***	1.689***	0.0144
	(0.133)	(0.530)	(0.135)
ln(alpha)	-0.673		-3.922*
	(0.430)		(3.866)
Observations	166	166	
Log likelihood	-210.1	-190.4	

Note: Standard errors in parentheses: *** p < 0.01, ** p < 0.05, * p < 0.1. The Vuong test supports the zero-inflated model (2) with 0.0009 significance. The LR chi2(4) = 39.31*** also supports model (2) over model (1). The same remarks as for Table 1 apply. The population, area and GDP per capita figures are for 2007 and refer only to the countries parties of the World Heritage Convention in 2010. Afghanistan, Andorra, United Arab Emirates, Bahrain, Barbados, the Cook Islands, Cuba, Dominica, Equatorial Guinea, Iraq, Kuwait, Monaco, Myanmar, Niue, Oman, North Korea, Qatar, Sao Tome and Principe, Turkmenistan, the Vatican and Zimbabwe are not considered because of missing data.

Source: http://whc.unesco.org/en/list, accessed on 30.8.2010. World Bank Development Indicators.

Table A: Population, Area and GDP of continents, 2007

Region	Population (100 mil.)	Area (mil. sqkm)	GDP (bn. USD)
Africa (sub-Saharan)	7.5027	19.5668	449.9070
Americas	8.9747	38.4179	14,926.2990
Asia and Pacific	37.4945	35.2575	10,781.7653
Arabian Countries	2.8591	12.8153	670.3000
Europe	8.2767	23.0854	11,379.0200
World	65.1076	129.1429	38,207.2913

Note: GDP is measured in billion constant 2000 USD. The figures refer to 2007 and to the countries that signed the World Heritage Convention for which data were available.
Source: World Bank Development Indicators.